

**Abstract**

A fluid barrier along the inside surface of ductwork between a reactor and subsequent product separation and recovery apparatus to reduce the buildup of solids on the ductwork from a gaseous product mixture conveyed through the ductwork. Barrier  
5 fluid is sprayed along the internal surface of the ductwork to form a fluid barrier and cool the gaseous mixture. The barrier fluid can be comprised of a component of the gaseous mixture. The barrier fluid can be a liquid at the second temperature and converted to a gaseous state in the ductwork, using the heat of vaporization of the barrier fluid to help cool the gaseous mixture.